



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
MUNICIPAL SOLID WASTE LANDFILL CLOSURE PLAN
CLOSURE PLAN FORM SWF-3

SF 50390 (7-01)

To begin:

Please read the instruction manual before beginning. This form shall be used to submit closure plans for municipal solid waste landfills (MSWLFs) both individually and with permit applications. Closure plans, either individually or with permit applications, along with support documentation, should be submitted to:

**Solid Waste Permits Section
Office of Land Quality (N1154)
Indiana Department of Environmental Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015**

**MUNICIPAL SOLID WASTE LANDFILL CLOSURE PLAN
(329 IAC 10-22)**

I. GENERAL INFORMATION

- A. Facility Name: _____
- B. Facility Location: _____
- C. Facility County: _____
- D. Facility Solid Waste Permit No. _____
(if existing permitted facility)
- E. Total Fill Acreage _____

II. CLOSURE ACTIVITIES-GENERAL DESCRIPTION

Provide a description of the steps that will be used to partially close, if applicable, and finally close the facility. See instructions for items that should be included

II. CLOSURE ACTIVITIES-GENERAL DESCRIPTION-Continued (Photocopy additional pages as necessary)

III. FINAL COVER DESCRIPTION - Provide a detailed description of the final cover (see instructions). Attach additional sheets as necessary.

IV. LABOR, MATERIALS AND TESTING - Provide a listing of items necessary to close the facility (see instructions).

For items that will vary depending upon the number of acres to be closed, the quantities should be indicated on a per acre basis. Include items for both the closure activities and final cover noted above. Use additional sheets as needed.

A. Item	B. Quantity	C. Units
	(use applicable unit as appropriate)	(use unit as appropriate)

V. EXPECTED YEAR OF CLOSURE AND CLOSURE SCHEDULE

A. Expected Year of Closure

B. Total Time Required to Close Facility

C. Time Required for Completion of Intervening Closure Activities - Provide a description of intervening closure activities and the time required; see instructions.

VI. ESTIMATE OF MAXIMUM INVENTORY OF WASTE

VII. ESTIMATE OF COST PER ACRE FOR FINAL COVER & VEGETATION - Please see instructions; attach additional sheets as necessary.

A. COVER MATERIAL AVAILABILITY, & ACQUISITION, PLACEMENT AND COMPACTION COSTS FOR AREAS CLOSING WITH A COMPOSITE BOTTOM LINER AND A LEACHATE COLLECTION SYSTEM-329 IAC 10-22-6(b)

1. Percent of Final Cover Material Available from Areas That Are Controlled, and Will be Controlled Through Post-Closure, by the Owner, Operator or Permittee.

a. Methane Gas Venting Layer Material (12 inches)

1) % of material _____

2) Describe location of sources _____
(include distance from facility)

b. Soil Barrier Layer Material (lower 12 inches-structural fill)

1) % of material _____

2) Describe location of sources _____
(include distance from facility)

c. Soil Barrier Layer Material (upper 12 inches-earthen material)

1) % of material _____

2) Describe location of sources _____
(include distance from facility)

d. Geomembrane layer not applicable-delivered to site

e. Drainage Layer Material (12 inches)

1) % of material _____

2) Describe location of sources _____

(include distance from facility)

f. Top Protective Soil Layer Material (18 inches; 30 inches if geosynthetic drainage layer used)

1) % of material _____

2) Describe location of sources _____
(include distance from facility)

g. Vegetative Layer (topsoil) (6 inches)

1) % of material _____

2) Describe location of sources _____
(include distance from facility)

2. Cost Per Acre for Acquisition, Placement & Compaction of Final Cover Layers

a. Methane Gas Venting Layer Material (12 inches)

1) Acquisition

a) Quantity of material _____ **1,613 yd³**
needed per acre (yd³)

b) Excavation unit cost (\$/yd³) _____
(if obtained on-site)

c) Purchase unit cost (\$/yd³) _____
(if obtained off-site)

d) Delivery unit cost (\$/yd³) _____
(if obtained off-site)

e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*

Line 1.a * (line 1.c + line 1.d) (off-site)	_____
2) Placement and Spreading	
a) Placement/spreading cost (\$/yd ³)	_____
b) Placement and spreading costs (\$/acre) line 1.a * line 2.a	_____
3) Testing and QA/QC	
a) Tests for grain size and hydraulic conductivity (\$/acre)	_____
b) Survey control for cover thickness (\$/acre)	_____
c) Testing cost (\$/acre) Line 3.a + line 3.b	_____
4) TOTAL COST, METHANE GAS VENTING LAYER (\$/acre) Line 1.e + line 2.b + line 3.c	_____
b. Soil Barrier Layer Material and Structural Fill (24 inches) Per Acre	
1) Acquisition	
a) Quantity of material needed per acre (yd ³)	<u>3,227 yd³</u>
b) Excavation unit cost (\$/yd ³) (if obtained on-site)	_____
c) Purchase unit cost (\$/yd ³) (if obtained off-site)	_____
d) Delivery unit cost (\$/yd ³) (if obtained off-site)	_____
e) Acquisition cost (\$/acre) Line 1.a * line 1.b (on-site) <i>or</i> Line 1.a * (line 1.c + line 1.d) (off-site)	_____
2) Placement and Compaction	
a) Placement/spreading cost (\$/yd ³)	_____
b) Compaction unit cost (\$/yd ³)	_____
c) Placement and compaction costs (\$/acre) line 1.a * (line 2.a + line 2.b)	_____

3) Testing and QA/QC

- a) Tests for grain size, Atterberg limits and hydraulic conductivity (\$/acre) _____
- b) Survey control for cover thickness (\$/acre) _____
- c) Density and moisture content testing (if planned) (\$/acre) _____
- d) Testing cost (\$/acre)
Line 3.a + line 3.b + line 3.c _____

4) **TOTAL COST, SOIL BARRIER LAYER AND STRUCTURAL FILL (\$/acre)**
Line 1.e + line 2.c + line 3.d _____

c. **Geomembrane Liner**

1) Acquisition

- a) Quantity of material needed per acre (yd²) 4,840 yd²
- b) Purchase unit cost (\$/yd²) _____
- c) Delivery unit cost (\$/yd²) (if applicable) _____
- d) Acquisition cost (\$/acre)
Line 1.a * (line 1.b + line 1.c) _____

2) Placement

- a) Placement unit cost (\$/yd²) (if applicable and not included in purchasing unit cost) _____
- b) Placement costs (\$/acre)
Line 1.a * line 2.a _____

3) Testing and QA/QC

- a) Fingerprinting, destructive (shear, and peel tests) & non-destructive seam test) (\$/acre) _____
- b) Other testing (\$/acre) _____
- c) Testing cost (\$/acre)
Line 3.a + line 3.b (if applicable) _____

4) **TOTAL COST, GEOMEMBRANE LINER (\$/acre)**

Line 1.d + line 2.b + line 3.c

d. **Drainage Layer Material (12 inches) Per Acre**

1) Acquisition

a) Quantity of material
needed per acre (yd³)

1,613 yd³

b) Excavation unit cost (\$/yd³)
(if obtained on-site)

c) Purchase unit cost (\$/yd³)
(if obtained off-site)

d) Delivery unit cost (\$/yd³)
(if obtained off-site)

e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site)

2) Placement and Spreading

a) Placement/spreading cost (\$/yd³)

b) Placement and spreading costs (\$/acre)
line 1.a * line 2.a

3) Testing and QA/QC

a) Tests for grain size and
hydraulic conductivity (\$/acre)

b) Survey control for cover thickness (\$/acre)

c) Testing cost (\$/acre)
Line 3.a + line 3.b

4) **TOTAL COST, DRAINAGE LAYER MATERIAL (\$/acre)**

Line 1.e + line 2.b + line 3.c

e. **Top Protective Soil Layer Material (18 inches; 30 inches if geosynthetic drainage layer used) Per Acre**

If drainage layer constructed of soil, the top protective soil layer must be at least 18 inches thick (2420 yd³/ac); if drainage layer constructed with geosynthetics, the top protective soil layer must be at least 30 inches thick (4033 yd³/ac).

1) Acquisition

- | | | |
|---|--|-------|
| a) Quantity of material needed per acre (yd ³) | <u>2,420 yd³-18 in. layer</u>
<u>4,033 yd³-30 in. layer</u> | |
| b) Excavation unit cost (\$/yd ³)
(if obtained on-site) | _____ | |
| c) Purchase unit cost (\$/yd ³)
(if obtained off-site) | _____ | |
| d) Delivery unit cost (\$/yd ³)
(if obtained off-site) | _____ | |
| e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) <i>or</i>
Line 1.a * (line 1.c + line 1.d) (off-site) | | _____ |

2) Placement and Spreading

- | | | |
|---|-------|-------|
| a) Placement/spreading cost (\$/yd ³) | _____ | |
| b) Placement and spreading costs (\$/acre)
line 1.a * line 2.a | | _____ |

3) Testing and QA/QC

- | | | |
|--|-------|-------|
| a) Tests for grain size (\$/acre) | _____ | |
| b) Survey control for cover thickness (\$/acre) | _____ | |
| c) Testing cost (\$/acre)
Line 3.a + line 3.b | | _____ |

4) **TOTAL COST, TOP PROTECTIVE SOIL LAYER (\$/acre)**

Line 1.e + line 2.b + line 3.c _____

f. **Vegetative Layer (topsoil) Material (6 inches) Per Acre**

1) Acquisition

- | | | |
|--|---------------------------|--|
| a) Quantity of material needed per acre (yd ³) | <u>807 yd³</u> | |
| b) Excavation unit cost (\$/yd ³)
(if obtained on-site) | _____ | |
| c) Purchase unit cost (\$/yd ³)
(if obtained off-site) | _____ | |
| d) Delivery unit cost (\$/yd ³)
(if obtained off-site) | _____ | |

- e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement

- a) Spreading unit cost (\$/yd³) _____

- b) Placement costs (\$/acre)
line 1.a * line 2.a _____

3) **TOTAL COST, VEGETATIVE SOIL LAYER (\$/acre)**
Line 1.e + line 2.b _____

- g. **TOTAL COST PER ACRE FOR ACQUISITION, PLACEMENT
& COMPACTION OF FINAL COVER LAYERS**
Line a.4 + line b.4 + line c.4 + line d.4 + line e.4 + line f..3 _____

**B. AVAILABILITY, & ACQUISITION, PLACEMENT AND COMPACTION COSTS FOR AREAS
CLOSING WITH A SOIL BOTTOM LINER AND A LEACHATE COLLECTION SYSTEM
WITH SLOPES EQUAL TO OR LESS THAN 15%-329 IAC 10-22-7(b)(1)**

**1. Percent of Final Cover Material Available from Areas That Are Controlled, and Will be Controlled
Through Post-Closure, by the Owner, Operator or Permittee.**

a. Soil Barrier Layer Material (24 inches; k #1 x 10⁻⁷ cm/sec)

- 1) % of material _____

- 2) Describe location of sources _____
(include distance from facility) _____

b. Vegetative Layer (topsoil)

- 1) % of material _____

- 2) Describe location of sources _____
(include distance from facility) _____

2. Cost Per Acre for Acquisition, Placement & Compaction of Final Cover Layers

a. Soil Barrier Layer Material (24 inches; k #1 x 10⁻⁷ cm/sec) Per Acre

1) Acquisition

- a) Quantity of material needed per acre (yd³) 3,227 yd³
- b) Excavation unit cost (\$/yd³)
(if obtained on-site) _____
- c) Purchase unit cost (\$/yd³)
(if obtained off-site) _____
- d) Delivery unit cost (\$/yd³)
(if obtained off-site) _____
- e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement and Compaction

- a) Placement/spreading cost (\$/yd³) _____
- b) Compaction unit cost (\$/yd³) _____
- c) Placement and compaction costs (\$/acre)
line 1.a * (line 2.a + line 2.b) _____

3) Testing and QA/QC

- a) Tests for grain size, Atterberg limits and
hydraulic conductivity (\$/acre) _____
- b) Survey control for cover thickness (\$/acre) _____
- c) Density testing (\$/acre) _____
- d) Testing cost (\$/acre)
Line 3.a + line 3.b + line 3.c _____

4) TOTAL COST, SOIL BARRIER LAYER (\$/acre)

Line 1.e + line 2.c + line 3.d _____

b. Vegetative Layer (topsoil) Material (6 inches)

1) Acquisition

- a) Quantity of material needed per acre (yd³) 807 yd³
- b) Excavation unit cost (\$/yd³) _____

(if obtained on-site)

c) Purchase unit cost (\$/yd³) _____
(if obtained off-site)

d) Delivery unit cost (\$/yd³) _____
(if obtained off-site)

e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement

a) Spreading unit cost (\$/yd³) _____

b) Placement costs (\$/acre)
line 1.a * line 2.a _____

3) **TOTAL COST, VEGETATIVE LAYER (topsoil)(\$/acre)**
Line 1.e + line 2.b _____

c. **TOTAL COST PER ACRE FOR ACQUISITION, PLACEMENT
& COMPACTION OF FINAL COVER LAYERS**
Line a.4 + line b.3 _____

**C. AVAILABILITY, & ACQUISITION, PLACEMENT AND COMPACTION COSTS FOR AREAS
CLOSING WITH A SOIL BOTTOM LINER AND A LEACHATE COLLECTION SYSTEM
WITH SLOPES GREATER THAN 15%-329 IAC 10-22-7(b)(2)**

**1. Percent of Final Cover Material Available from Areas That Are Controlled, and Will be Controlled
Through Post-Closure, by the Owner, Operator or Permittee.**

a. Soil Barrier Layer Material (24 inches-thickness may be more per approved plan; k #1 x 10⁻⁶ cm/sec)

1) % of material _____

2) Describe location of sources _____
(include distance from facility)

b. Vegetative Layer (topsoil)

1) % of material _____

2) Describe location of sources _____
(include distance from facility)

2. Cost Per Acre for Acquisition, Placement & Compaction of Final Cover Layers

a. Soil Barrier Layer Material (24 inches; k #1 x 10⁻⁶ cm/sec) Per Acre

1) Acquisition

a) Quantity of material needed per acre (yd³) 3,227 yd³

b) Excavation unit cost (\$/yd³)
(if obtained on-site) _____

c) Purchase unit cost (\$/yd³)
(if obtained off-site) _____

d) Delivery unit cost (\$/yd³)
(if obtained off-site) _____

e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement and Compaction

a) Placement/spreading cost (\$/yd³) _____

b) Compaction unit cost (\$/yd³) _____

c) Placement and compaction costs (\$/acre)
line 1.a * (line 2.a + line 2.b) _____

3) Testing and QA/QC

a) Tests for grain size, Atterberg limits and
hydraulic conductivity (\$/acre) _____

b) Survey control for cover thickness (\$/acre) _____

c) Density testing (\$/acre) _____

d) Testing cost (\$/acre)
Line 3.a + line 3.b + line 3.c _____

4) TOTAL COST, SOIL BARRIER LAYER (\$/acre)

Line 1.e + line 2.c + line 3.d _____

b. Vegetative Layer (topsoil) Material (6 inches) Per Acre

1) Acquisition

- a) Quantity of material needed per acre (yd³) 807 yd³
- b) Excavation unit cost (\$/yd³)
(if obtained on-site) _____
- c) Purchase unit cost (\$/yd³)
(if obtained off-site) _____
- d) Delivery unit cost (\$/yd³)
(if obtained off-site) _____
- e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement

- a) Spreading unit cost (\$/yd³) _____
- b) Placement costs (\$/acre)
line 1.a * line 2.a _____

3) **TOTAL COST, VEGETATIVE LAYER (topsoil)(\$/acre)**

Line 1.e + line 2.b _____

c. **TOTAL COST PER ACRE FOR ACQUISITION, PLACEMENT
& COMPACTION OF FINAL COVER LAYERS**

Line a.4 + line b.3 _____

**D. COVER MATERIAL AVAILABILITY, & ACQUISITION, PLACEMENT AND COMPACTION COSTS
FOR AREAS CLOSING WITHOUT A COMPOSITE OR SOIL BOTTOM LINER OR A LEACHATE
COLLECTION SYSTEM, CLOSING AFTER JANUARY 1, 1998, WITH SLOPES EQUAL TO OR LESS
THAN 15%-329 IAC 10-22-7(c)(1)**

**1. Percent of Final Cover Material Available from Areas That Are Controlled, and Will be Controlled
Through Post-Closure, by the Owner, Operator or Permittee.**

a. **Methane Gas Venting Layer Material (12 inches)**

- 1) % of material _____
- 2) Describe location of sources _____
(include distance from facility) _____

b. **Soil Barrier Layer Material (lower 12 inches-structural fill)**

1) % of material _____

2) Describe location of sources _____
(include distance from facility) _____

c. Soil Barrier Layer Material (upper 12 inches-earthen material)

1) % of material _____

2) Describe location of sources _____
(include distance from facility) _____

d. Geomembrane layer not applicable-delivered to site

e. Drainage Layer Material (12 inches)

1) % of material _____

2) Describe location of sources _____
(include distance from facility) _____

f. Top Protective Soil Layer Material (18 inches; 30 inches if geosynthetic drainage layer used)

1) % of material _____

2) Describe location of sources _____
(include distance from facility) _____

g. Vegetative Layer (topsoil) (6 inches)

1) % of material _____

2) Describe location of sources _____
(include distance from facility) _____

2. Cost Per Acre for Acquisition, Placement & Compaction of Final Cover Layers

a. Methane Gas Venting Layer Material (12 inches) Per Acre

1) Acquisition

a) Quantity of material needed per acre (yd ³)	<u>1,613 yd³</u>	
b) Excavation unit cost (\$/yd ³) (if obtained on-site)	_____	
c) Purchase unit cost (\$/yd ³) (if obtained off-site)	_____	
d) Delivery unit cost (\$/yd ³) (if obtained off-site)	_____	
e) Acquisition cost (\$/acre) Line 1.a * line 1.b (on-site) <i>or</i> Line 1.a * (line 1.c + line 1.d) (off-site)		_____

2) Placement and Spreading

a) Placement/spreading cost (\$/yd ³)	_____	
b) Placement and compaction costs (\$/acre) line 1.a * line 2.a		_____

3) Testing and QA/QC

a) Tests for grain size and hydraulic conductivity (\$/acre)	_____	
b) Survey control for cover thickness (\$/acre)	_____	
c) Testing cost (\$/acre) Line 3.a + line 3.b		_____

4) TOTAL COST, METHANE GAS VENTING LAYER (\$/acre) Line 1.e + line 2.b + line 3.c		_____
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b. Soil Barrier Layer Material and Structural Fill (24 inches) Per Acre

1) Acquisition

- a) Quantity of material needed per acre (yd³) 3,227 yd³
- b) Excavation unit cost (\$/yd³) (if obtained on-site) _____
- c) Purchase unit cost (\$/yd³) (if obtained off-site) _____
- d) Delivery unit cost (\$/yd³) (if obtained off-site) _____
- e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement and Compaction

- a) Placement/spreading cost (\$/yd³) _____
- b) Compaction unit cost (\$/yd³) _____
- c) Placement and compaction costs (\$/acre)
line 1.a * (line 2.a + line 2.b) _____

3) Testing and QA/QC

- a) Tests for grain size, Atterberg limits and hydraulic conductivity (\$/acre) _____
- b) Survey control for cover thickness (\$/acre) _____
- c) Density and moisture content testing (\$/acre) _____
- d) Testing cost (\$/acre)
Line 3.a + line 3.b + line 3.c _____

4) TOTAL COST, SOIL BARRIER LAYER AND STRUCTURAL FILL (\$/acre)
Line 1.e + line 2.c + line 3.d _____

c. Geomembrane Liner Per Acre

1) Acquisition

- a) Quantity of material needed per acre (yd²) 4,840 yd²

- b) Purchase unit cost (\$/yd²) _____
- c) Delivery unit cost (\$/yd²)
(if applicable) _____
- d) Acquisition cost (\$/acre)
Line 1.a * (line 1.b + line 1.c) _____

2) Placement

- a) Placement unit cost (\$/yd²)
(if applicable and not included
in purchasing unit cost) _____
- b) Placement costs (\$/acre)
Line 1.a * line 2.a _____

3) Testing and QA/QC

- a) Fingerprinting, destructive (shear,
and peel tests) & non-destructive
seam tests) (\$/acre) _____
- b) Other testing (\$/acre) _____
- c) Testing cost (\$/acre)
Line 3.a + line 3.b (if applicable) _____

4) **TOTAL COST, GEOMEMBRANE LINER (\$/acre)**

Line 1.d + line 2.b + line 3.c _____

d. **Drainage Layer Material (12 inches) Per Acre**

1) Acquisition

- a) Quantity of material
needed per acre (yd³) _____ **1,613 yd³** _____
- b) Excavation unit cost (\$/yd³)
(if obtained on-site) _____
- c) Purchase unit cost (\$/yd³)
(if obtained off-site) _____
- d) Delivery unit cost (\$/yd³)
(if obtained off-site) _____
- e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement and Spreading

a)	Placement/spreading cost (\$/yd ³)	_____
b)	Placement and spreading costs (\$/acre) line 1.a * line 2.a	_____
3) Testing and QA/QC		
a)	Tests for grain size limits and hydraulic conductivity (\$/acre)	_____
b)	Survey control for cover thickness (\$/acre)	_____
c)	Testing cost (\$/acre) Line 3.a + line 3.b	_____
4)	TOTAL COST, DRAINAGE LAYER MATERIAL (\$/acre) Line 1.e + line 2.b + line 3.c	_____
e. Top Protective Soil Layer Material (18 inches; 30 inches if geosynthetic drainage layer used) If drainage layer constructed of soil, the top protective soil layer must be at least 18 inches thick (2420 yd ³ /ac); if drainage layer constructed with geosynthetics, the top protective soil layer must be at least 30 inches thick (4033 yd ³ /ac).		
1) Acquisition		
a)	Quantity of material needed per acre (yd ³)	<u>2,420 yd³-18 in. layer</u> <u>4,033 yd³-30 in. layer</u>
b)	Excavation unit cost (\$/yd ³) (if obtained on-site)	_____
c)	Purchase unit cost (\$/yd ³) (if obtained off-site)	_____
d)	Delivery unit cost (\$/yd ³) (if obtained off-site)	_____
e)	Acquisition cost (\$/acre) Line 1.a * line 1.b (on-site) <i>or</i> Line 1.a * (line 1.c + line 1.d) (off-site)	_____
2) Placement and Spreading		
a)	Placement/spreading cost (\$/yd ³)	_____
b)	Placement and spreading costs (\$/acre) line 1.a * line 2.a	_____
3) Testing and QA/QC		
a)	Tests for grain size (\$/acre)	_____
b)	Survey control for cover thickness	_____

(\$/acre)

- c) Testing cost (\$/acre)
Line 3.a + line 3.b

- 4) **TOTAL COST, TOP PROTECTIVE SOIL LAYER (\$/acre)**
Line 1.e + line 2.b + line 3.c

f. **Vegetative Layer (topsoil) Material (6 inches)**

1) Acquisition

- a) Quantity of material
needed per acre (yd³)

807 yd³

- b) Excavation unit cost (\$/yd³)
(if obtained on-site)

- c) Purchase unit cost (\$/yd³)
(if obtained off-site)

- d) Delivery unit cost (\$/yd³)
(if obtained off-site)

- e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site)

2) Placement

- a) Spreading unit cost (\$/yd³)

- b) Placement costs (\$/acre)
line 1.a * line 2.a

- 3) **TOTAL COST, VEGETATIVE LAYER (\$/acre)**
Line 1.e + line 2.b

g. **TOTAL COST PER ACRE FOR ACQUISITION, PLACEMENT
& COMPACTION OF FINAL COVER LAYERS**

Line a.4 + line b.4 + line c.4 + line d.4 + line e.4 + line f..3

**E. AVAILABILITY, & ACQUISITION, PLACEMENT AND COMPACTION COSTS FOR AREAS
CLOSING WITHOUT A COMPOSITE OR SOIL BOTTOM LINER OR A LEACHATE
COLLECTION SYSTEM, CLOSING AFTER JANUARY 1, 1998, WITH SLOPES GREATER THAN
15%-329 IAC 10-22-7(c)(2)**

**1. Percent of Final Cover Material Available from Areas That Are Controlled, and Will be Controlled
Through Post-Closure, by the Owner, Operator or Permittee.**

- a. **Soil Barrier Layer Material (24 inches-thickness may be more per approved plan; k #1 x 10⁻⁶ cm/sec)**

1) % of material _____

2) Describe location of sources _____
(include distance from facility) _____

b. Vegetative Layer (topsoil)

1) % of material _____

2) Describe location of sources _____
(include distance from facility) _____

2. Cost Per Acre for Acquisition, Placement & Compaction of Final Cover Layers

a. Soil Barrier Layer Material (24 inches; k #1 x 10⁻⁶ cm/sec) Per Acre

1) Acquisition

a) Quantity of material needed per acre (yd³) 3,227 yd³

b) Excavation unit cost (\$/yd³) _____
(if obtained on-site)

c) Purchase unit cost (\$/yd³) _____
(if obtained off-site)

d) Delivery unit cost (\$/yd³) _____
(if obtained off-site)

e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement and Compaction

a) Placement/spreading cost (\$/yd³) _____

b) Compaction unit cost (\$/yd³) _____

c) Placement and compaction costs (\$/acre)
line 1.a * (line 2.a + line 2.b) _____

3) Testing and QA/QC

- a) Tests for grain size, Atterberg limits and hydraulic conductivity (\$/acre) _____
- b) Survey control for cover thickness (\$/acre) _____
- c) Density testing (\$/acre) _____
- d) Testing cost (\$/acre)
Line 3.a + line 3.b + line 3.c _____

4) **TOTAL COST, SOIL BARRIER LAYER (\$/acre)**
Line 1.e + line 2.c + line 3.d _____

b. **Vegetative Layer (topsoil) Material (6 inches) Per Acre**

1) Acquisition

- a) Quantity of material needed per acre (yd³) 807 yd³
- b) Excavation unit cost (\$/yd³)
(if obtained on-site) _____
- c) Purchase unit cost (\$/yd³)
(if obtained off-site) _____
- d) Delivery unit cost (\$/yd³)
(if obtained off-site) _____
- e) Acquisition cost (\$/acre)
Line 1.a * line 1.b (on-site) *or*
Line 1.a * (line 1.c + line 1.d) (off-site) _____

2) Placement

- a) Spreading unit cost (\$/yd³) _____
- b) Placement costs (\$/acre)
line 1.a * line 2.a _____

3) **TOTAL COST, VEGETATIVE LAYER (topsoil)(\$/acre)**
Line 1.e + line 2.b _____

c. **TOTAL COST PER ACRE FOR ACQUISITION, PLACEMENT & COMPACTION OF FINAL COVER LAYERS**
Line a.4 + line b.3 _____

F. COST PER ACRE TO ESTABLISH VEGETATION (ALL AREAS)

1. **Vegetation**

- a. Seeding unit cost (\$/acre) _____
- b. Fertilization unit cost (\$/acre) _____

c. Mulching unit cost (\$/acre) _____

d. **TOTAL VEGETATION ESTABLISHMENT COSTS (\$/acre)**

Line 1.a + line 1.b + line 1.c _____

G. COST PER ACRE TO CERTIFY CLOSURE (ALL AREAS)

1. Registered Professional Engineer (PE)

a. Initial review of closure plan (hrs) _____

b. Total number of inspections _____

c. Inspection time required (hrs/visit) _____

d. Total inspection time (hrs) _____

Line 1.b * line 1.c

e. Prepare final documentation
of construction of cover (hrs) _____

f. Total engineer time (hrs) _____

Line 1.a + line 1.d + line 1.e

g. Professional engineer unit labor cost (\$/hr) _____

h. Professional engineer cost (\$)

Line 1.f * line 1.g _____

i. Area of site permitted for filling (acres) _____

TOTAL CLOSURE CERTIFICATION COSTS (\$/acre)

Line 1.h ÷ line 1.i _____

H. OTHER COSTS PER ACRE FOR FINAL COVER AND CERTIFICATION (ALL AREAS)

1. Other Costs (\$/acre) (describe on lines below)

TOTAL, OTHER COSTS PER ACRE (\$/acre) _____

I. SUBTOTAL, PER ACRE FINAL COVER AND CERTIFICATION COSTS

For closure over areas with composite bottom liner system, enter amount no less than \$75,000

For closure over areas without composite bottom liner system, enter amount no less than \$20,000

Total, Section A.2 + Total, Section B.2, + Total, Section C.2 + Total, Section D.2
+ Total, Section E.2 + Total, Section F + Total, Section G + Total, Section H _____

VIII. OTHER CLOSURE COSTS - Please give on a total facility basis rather than a per acre basis

A. Notation on Property Deed _____

B. Other Costs - include here costs for such items as drainage features, gas vents, etc. _____

1. Activity _____ Cost _____

C. TOTAL, OTHER CLOSURE COSTS

Line A + line B _____

IX. TOTAL CLOSURE COST

[Item I.E (total fill acreage) * item VII.I (per acre final cover
and certification costs)] + item VIII.C (other closure costs) _____

X. CONTINGENCY COST

Line IX * (0.10) _____

XI. TOTAL CLOSURE COST ESTIMATE (including contingency cost)

Line IX + line X _____

XII. FINAL CLOSURE COST PER ACRE

Line XI ÷ line I.E (total fill acreage) _____

XIII. CONSTRUCTION QUALITY ASSURANCE/QUALITY CONTROL PLAN

Attach at the end of this closure plan form a construction quality assurance/quality control plan detailing the quality assurance/quality control steps that will be taken during construction and installation of the final cover system.

XIV. Optional - INFORMATION REQUIRED FOR FACILITIES INCREMENTALLY FUNDING FINANCIAL ASSURANCE - enter "na" on the first line of the table if you are not incrementally funding using one of these options

A. Maximum Areas of Waste Deposition and Closure Costs - provide in the table below the listed information for each remaining year of the facility's life

Year	Maximum Area of Waste Deposition (cumulative acres at end of each year)	Closure Cost w/o Partial Closure (\$)	Area Partially Closed (cumulative acres at start of each year)	Incremental Closure Cost Estimate (\$)
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[illegible]

Attach additional sheets if your facility's expected remaining lifetime is more than 20 years

- B. Map of Areas of Waste Deposition** - Attach copy of facility's final contour map marked to show the maximum areas of waste deposition for each succeeding year of the remaining life of the facility.

XV. LARGEST CLOSED AREA ESTIMATE - Provide an estimate of the largest area of the MSWLF unit ever requiring a final cover at any time during the unit's proposed active life.

XVI. Optional - ESTIMATE OF YEARLY MAINTENANCE COSTS FOR A DIKE OR DIKES REQUIRED FOR CONSTRUCTION IN FLOOD PLAIN - provide in the table below estimates for the yearly maintenance costs for any dikes you will build if you are constructing your facility in a flood plain. Enter "na" on the first line if not applicable

Year	Costs (\$)

Year	Costs (\$)

Attach additional sheets if your facility's expected remaining lifetime is more than 20 years

XVII. SIGNATORY CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that I am authorized to submit this information."

Signature: _____ Date: _____

Name: _____ Telephone No.: _____

Address: _____

Professional Engineer Registration No. _____